70 Equipment

Items available from Southwest Area caches are listed in the Southwest Area Interagency Equipment portion of the National Interagency Equipment Catalog.

71 Radios and Communications Equipment

71.1 National Fire Radio Cache

a. NIRSC ICS Communications Equipment Catalog. Contains detailed information on contents of the NIRSC Starter System (NFES #4390) which includes VHF Command, UHF Logistics systems, other radio kits, and complete instructions on how to order them.

b. NIRSC Users Guide. Contains instructions on management and dispatch of communications systems, system identification, and a complete discussion on how best to use the radio systems. It also contains information on the ICS Command System (VHF) and Logistics System (UHF) frequencies.

71.2 Frequency Management

a. "Guard One" (168.625) is designated as the emergency channel and is not to be used as a general discussion frequency but will be used as a contact frequency only. This is a contact and emergency frequency for use between aircraft and ground units. Use air-to-ground to divert aircraft to another target or to make contact to switch to another frequency, etc. Guard One should not be used at air tanker bases or helitack bases for **dispatching or conversation** with aircraft.

b. "Flight Following" (168.650) - Frequency 168.650 is the approved flight following frequency for ground-to-air communications between base stations and aircraft. Air tanker bases, primary heliports, and dispatch offices are authorized to use this frequency for a discussion channel to aircraft. Until all dispatch offices have this capability, they are to use their own agency channel for flight following.

c. Air Tactic Frequencies (Air-to-Ground, VHF-FM) - Each zone has been preassigned an air-to-ground frequency. These frequencies have been assigned considering geographical locations to avoid as much interference as possible. If conflicts arise, a temporary reassignment of frequencies can be arranged through coordination with SWCC.

ZONE	FREQUENCY
Taos Zone	171.425
Santa Fe Zone	166.6875
Albuquerque Zone	169.150
Lincoln Zone	166.6875
Gila-Las Cruces Zone	171.475
Southeast Arizona Zone	171.425
White Mountain Zone	171.1375
Central West Zone	166.675
Northern Arizona Zone (GCZ)	171.475
Northern Arizona Zone (FLZ)	171.575

d. VHF-AM Frequencies (Air-to-Air) - These frequencies are temporarily assigned to incidents within the Southwest Area for air-to-air communications. There is a limited number of frequencies available for our use, thus requiring careful consideration as to the need and timely release.

Following are some reminders before ordering and during use of these frequencies:

1. Need?
2. Operate all aircraft on one victor frequency?
3. Has the traffic decreased enough so that the frequency can be released (or one if you originally had two)?

The following VHF-AM primary frequencies have been identified for use within Arizona and New Mexico, respectively. **These are for Initial Attack Only.** Once the primary air-to-air frequency has been assigned, the zone coordination center will send a message via the DMS stating that the zone's primary initial attack frequency is in use. The zone coordination center will then send an aircraft resource order to SWCC for an additional VHF-AM frequency (to "fill behind" the primary for that zone). This new frequency will then be used for any other initial attack within that zone. Once an incident goes beyond the initial attack stage (the next day or operational period), the zone coordination center will place new VHF-AM frequency orders with SWCC for that incident. The primary VHF-AM frequency for that zone will then become available for initial attack and the secondary ("fill behind") frequency will be released to SWCC. Per NIRSC, frequencies unavailable at print time.

ZONE ARIZONA	PRIMARY	ZONE NEW MEXICO	PRIMARY
CWZ	135.675	ABZ (WEST)	118.775
FLZ	135.650	ABZ (EAST)	119.575 (Texas)
GCZ	136.600	GLZ	120.750
SEZ	135.625	LNZ (WEST)	135.550
WMZ	118.950	LNZ (EAST)	119.975 (Texas)
		SNZ	119.425
		TAZ (WEST)	120.125
		TAZ (EAST)	118.975

NOTE: These frequencies are NOT interchangeable between zones. The FAA has assigned them according to zone boundaries.

71.3 Unit Frequencies

SOUTHWEST AREA UNIT FREQUENCIES — NEW MEXICO

Flight Following All Zones = 168.650 GUARD = 168.625

Taos Zone

Primary Air to Air AM	120.125 (W)	118.975 (E)
Primary Air to Ground FM	171.425	

	RX FREQ	RX TONE	TX FREQ	TX TONE	MODE
Carson NF	169.175	None	169.175	None	Narrow
Taos BLM	168.525	192.8	168.525	192.8	Narrow
Farmington BLM	168.525	None	168.525	None	Narrow
Jicarilla BIA	171.75	None	171.75	None	Narrow
Northern Pueblos BIA	166.300	None	166.300	None	Narrow
FWS - Maxwell Refuge	164.625	None	164.625	None	Narrow
NM State - Chama District	159.42	None	156.7	None	Wide
NM State - Cimmarron District	159.42	None	156.7	None	Wide

Santa Fe Zone

Primary Air to Air AM	119.425
Primary Air to Ground FM	166.6875

	RX FREQ	RX TONE	TX FREQ	TX TONE	MODE
Santa Fe NF	172.3	None	172.3	None	Narrow
Northern Pueblos BIA	172.75	None	172.75	None	Narrow
Bandelier NPS	170.05	None	169.4	None	Narrow
FWS - Las Vegas Refuge	164.625	None	164.625	None	Narrow
NM State Forestry - Las Vegas District	159.42	None	156.7	None	Wide

Albuquerque Zone

Primary Air to Air AM	118.775 (W)	119.575 (E)
Primary Air to Ground FM	169.150 (W)	170.000 (E)

	RX FREQ	RX TONE	TX FREQ	TX TONE	MODE
Cibola NF	170.525	110.9	170.525	110.9	Narrow
Southern Pueblos BIA	172.675	None	172.675	146.2	Wide
Zuni BIA	172.45	None	172.45	None	Wide
Ramah/Laguna BIA	172.75	None	172.75	103.5	Wide
Albuquerque District BLM	168.525	192.8	168.525	192.8	Narrow
El Malpais NPS	168.275	None	168.275	127.3	Narrow
Lake Meredith NPS	166.9	173.8	166.9	173.8	Wide
NM State Forestry - Bernalillo District	159.42	None	159.42	156.7	Wide

Gila Las Cruces Zone

Primary Air to Air AM	120.750
Primary Air to Ground FM	171.475

	RX FREQ	RX TONE	TX FREQ	TX TONE	MODE
Gila NF North	169.975	None	169.975	None	Narrow
Gila NF South	169.175	None	169.175	None	Narrow
Las Cruces BLM	168.575	None	168.575	None	Narrow
Socorro BLM	169.65	None	169.65	None	Narrow
FWS - Bosque Del Apache Refuge	164.625	None	164.625	None	Narrow
FWS - San Andres Refuge	164.725	None	163.0375	None	Narrow
FWS - Sevilleta Refuge	164.625	None	164.625	None	Narrow
NM State Forestry - Socorro District	159.42	None	159.42	156.7	Wide

Lincoln Zone

Primary Air to Air AM	135.550 (W)	119.975 (E)
Primary Air to Ground FM	166.6875 (W)	170.000 (E)
Flight Following and Guard Tone		110.9

	RX FREQ	RX TONE	TX FREQ	TX TONE	MODE
Lincoln NF	169.125	203.5	169.125	203.5	Narrow
Mescalero BIA	172.45	None	172.45	114.8	Narrow
Roswell BLM	168.5	192.8	168.5	192.8	Narrow
FWS - Bitter Lake Refuge	164.625	None	164.625	141	Narrow
Carlsbad Caverns NPS	164.6	173.8	164.6	None	Narrow
Big Bend NPS	166.375	156.7	166.975	192.8	Narrow
Amistad NPS	166.325	None	166.325	None	Narrow
Guadalupe Mountains NPS	164.425	None	164.425	None	Narrow
NM State Forestry - Capitan District	159.42	None	159.42	156.7	Wide

SOUTHWEST AREA UNIT FREQUENCIES — ARIZONA

Flight Following All Zones = 168.650 Air Guard = 168.625

Grand Canyon Zone

Primary Air to Air AM	135.600
Primary Air to Ground FM	171.475

	RX FREQ	RX TONE	TX FREQ	TX TONE	MODE
Kaibab NF North	168.750	103.5	168.750	103.5	Narrow
Kaibab NF South	170.550	103.5	170.550	103.5	Narrow
Truxton Canyon BIA	168.325	103.5	166.875	103.5	Narrow
Grand Canyon NP	172.575	127.3	169.675	127.3	Narrow

Flagstaff Zone

Primary Air to Air AM	135.650
Primary Air to Ground FM	171.575

	RX FREQ	RX TONE	TX FREQ	TX TONE	MODE
Coconino NF	171.550	103.5	171.550	103.5	Narrow
Navajo BIA	171.650	None	171.650	None	Narrow
Hopi BIA	168.375	None	168.375	None	Narrow
Flagstaff NPS	166.950	None	166.350	None	Wide

Central West Zone

Primary Air to Air AM 135.675
Primary Air to Ground FM 166.675

	RX FREQ	RX TONE	TX FREQ	TX TONE	MODE
Prescott NF	168.175	110.9	168.175	110.9	Narrow
Tonto NF	164.825	123.0	164.125	123.0	Narrow
Yuma BLM	167.175	None	167.175	None	Narrow
Colorado River BIA	172.425	None	172.425	None	Narrow
Pima BIA	169.400	None	169.400	None	Narrow

White Mountain Zone

Primary Air to Air AM 118.950
Primary Air to Ground FM 171.1375

	RX FREQ	RX TONE	TX FREQ	TX TONE	MODE
Apache-Sitgreaves NFs WEST	169.950	None	169.950	None	Narrow
Apache-Sitgreaves NFs EAST	169.875	None	169.875	None	Narrow
Fort Apache BIA	172.675	None	172.675	None	Narrow
Petrified Forest NPS	170.050	127.3	169.400	127.3	Wide

Southeast Zone

Primary Air to Air AM 135.625
Primary Air to Ground FM 171.425

	RX FREQ	RX TONE	TX FREQ	TX TONE	MODE
Coronado NF	169.600	None	169.600	None	Narrow
Safford BLM	168.5375	None	173.825	114.8	Narrow
San Carlos BIA	172.425	None	172.425	None	Narrow
Tohono O' Odham BIA	168.375	None	168.375	None	Narrow
Chiricahua/Coronado NPS	171.725	None	172.525	None	Narrow
Saguaro NPS	166.350	None	166.350	None	Narrow
FWS - Buenos Aires Refuge	164.625	None	164.625	None	Narrow

Arizona Interagency Fire Center

	RX FREQ	RX TONE	TX FREQ	TX TONE	MODE
Phoenix/Kingman BLM	168.300	None	168.300	None	Narrow
FWS - Colorado River Refuges	164.625	None	164.625	None	Narrow
Arizona Statewide Mutual Aid	154.280	None	154.280	None	Wide
AZ State Land - Channel One Repeater Locations: Bill Williams (N) and Towers (S)	151.400	162.200	159.405	162.200	Wide
AZ State Land - Channel Two Repeater Locations: Black Metal (W) Cunningham (SW) Greens (E) Lemon (S) Mingus (C)	151.415	123.0	159.435	123.0	Wide
AZ State Land - Channel Three Repeater Locations: Hayden (NW) Mule (SE) Signal (C)	151.415	162.2	159.435	162.2	Wide
AZ State Land - Channel Four Repeater Locations: Eldon (N) Heliograph (SE) Hualapai (NW)	151.400	123.0	159.405	123.0	Wide

d. Other

New Mexico Mutual Aid Frequency 154.310
Arizona Statewide Mutual Aid Fire Frequency 154.280
Scottsdale Rural Metro Fire Department 154.370
Travel Net. (Short range frequency for ground units and dispatch center use for unit-to-unit discussion and for contact between units) 168.350

CTCSS TONE/CHANNEL COMBINATIONS ON TE-64D ENCODER

CHANNEL	TONE		CHANNEL	TONE	
1	67.0		17	118.8	
2	71.9		18	123.0	*2
3	74.4		19	127.3	
4	77.0		20	131.8	*3
5	79.7		21	136.5	*4
6	82.5		22	141.3	
7	85.4		23	146.2	*5
8	88.5		24	151.4	
9	91.5		25	156.7	*6
10	94.8		26	162.2	
11	97.4		27	167.9	*7
12	100.0		28	173.8	
13	103.5	*8	29	179.9	
14	107.2		30	186.2	
15	110.9	*1	31	192.8	
16	114.8		32	203.5	

(*) INDICATES NSFS (STANDARD) TONES

e. Forest Service Multi-Channel Radio Programming. As a minimum, the following Southwest Area fire suppression resources shall be equipped with multi-channel, synthesized radios with scan capability:

Fire Management Officers
Engines
Hot Shot Crews
Helitack Crews
Dozers

f. Standardized Radio Programming. In an effort to standardize fire suppression frequency use and provide continuity from one zone to another, the following channelization plan for multi-channel radios will need to be programmed or installed by all agencies in the Southwest Area.

The NICC tactical frequencies have been preassigned in channels 9 through 11, so that there will be continuity between fire suppression units across the Southwest Area. The tactical frequencies are to be utilized to relieve incident radio traffic from the local agency radio net during initial attack or extended initial attack when a NICC fire radio cache is not in operation. Secondly, when an NICC cache is put into operation, resources on the incident can continue to utilize their multi-channel radios to communicate

Each zone has been assigned one of the frequencies as their primary tactical fire frequency to prevent interference between neighboring zones. If changes from this plan are necessary, or additional frequencies are needed, the zone dispatch office will coordinate these changes with the Aircraft Desk at SWCC who in turn will coordinate with the Regional Frequency Manager.

Preassigned Ground Tactical Fire Net Frequencies:

Taos Zone	Channel 9	168.050
Santa Fe Zone	Channel 10	168.200
Albuquerque Zone	Channel 11	168.600
Lincoln Zone	Channel 9	168.050
Gila-Las Cruces Zone	Channel 10	168.200
Southeast Arizona Zone	Channel 11	168.600
White Mountain Zone	Channel 9	168.050
Central Arizona Zone	Channel 10	168.200
Northern Arizona Zone (GCZ)	Channel 9	168.200
Northern Arizona Zone (FLZ)	Channel 11	168.600
Colorado River Zone	Channel 11	168.600

For initial air-to-ground contact, all zones - Channel 13 170.000.

Frequency plan for 16 Channel Mobile:

1.	(vacant)	9.	168.050
2.	(vacant)	10.	168.200
3.	(vacant)	11.	168.600
4.	(vacant)	12.	168.350
5.	(vacant)	13.	(vacant)
6.	(vacant)	14.	(vacant)
7.	(vacant)	15.	(vacant)
8.	(vacant)	16.	168.625

Frequency plan for multi-channel (14 Channel) personal portable radios:

1.	(vacant)	8.	(vacant)
2.	(vacant)	9.	168.050
3.	(vacant)	10.	168.200
4.	(vacant)	11.	168.600
5.	(vacant)	12.	168.350
6.	(vacant)	13.	(vacant)
7.	(vacant)	14.	168.625

These vacant channels in the multi-channel radios can be programmed as per the local agency frequency plan.

72 Weather Equipment

72.1 Atmospheric Theodolite Meteorological Unit (ATMU)

ATMUs (NFES 1836) are national resources utilized optionally by incident meteorologists (IMETs) upon specific request. ATMUs in the Southwest Area are ordered through the supply desk at SWCC and are positioned as follows:

ATMU	CACHE
AZ-01	Prescott
AZ-02	Prescott
NM-01	Silver City
NM-02	Silver City

73 Food Catering Services and Shower Facilities

73.1 Information Booklet (NFES #1276)

Information on Mobile Food and Shower Units can be found in the Food Catering Services booklet (NFES #1276) and Portable Shower Facilities booklet (NFES #2729) distributed by NWCG annually.

73.2 Use of Contract Caterers

If agency-owned food services cannot be sent, national contract food caterers must be used **whenever more than 600 meals will be served over the duration of the incident**.

a. Catering units in the Southwest Area are normally located in Albuquerque, NM and Flagstaff, AZ during the fire season. Units are also located in Kanab, UT and Montrose, CO.

b. Shower units are located in Flagstaff, AZ and in Albuquerque, NM.

c. All orders for mobile food units and/or portable shower units will be placed through the normal dispatching channels through SWCC to NICC.

d. Contracting Officer's Technical Representatives will be ordered by Overhead request for each catering or shower unit dispatched to a Forest Service incident.

73.3 Non-Contract (Local) Food Service Organizations

When non-contract caterers, force account kitchens, and other food service organizations are utilized, national contract specifications will be used as guidelines to assure firefighters receive adequate, nutritious, and safe meals.

74 Ignition Devices/Explosives/Helicopter Assistance

74.1 Terra Torch

a. Location of Terra Torches within the Southwest Area.

UNIT	LOCATION
Phoenix District	Phoenix, AZ
Albuquerque District	Albuquerque, NM
Carson NF	Taos, NM
Coconino NF	Flagstaff, AZ
Coronado NF	Sierra Vista, AZ
Gila NF	Quemado, NM

UNIT	LOCATION
Santa Fe NF	Española RD, Cuba RD
Fort Apache	Whiteriver, AZ
Bitter Lake Refuge	Bitter Lake, NM

b. Normal policy is to treat the terra torch as a module. An order for the unit will include an operator crew. When the torch goes off-district or off-forest the crew is responsible for the supervision of the entire operation. This includes mixing and operation. If the crew feels comfortable in supervising the actual operation of the torch during burning (by trained operators) this is within the policy, but the actual mixing, cleaning, testing, etc. shall be done only by the crew.

74.2 Helitorch (Aerial Drip Torch)

a. Location of Helitorches in the Southwest Area.

UNIT	LOCATION
Phoenix District	Phoenix, AZ
Fort Apache	Whiteriver, AZ
Prescott NF	Prescott, AZ
Gila NF	Silver City/Negrito, NM
Jicarilla Agency	Dulce, NM

Helitorches will not be sent without operators.

74.3 Premo MARK III Plastic Sphere Dispenser (PSD)

a. Location of Plastic Sphere Dispensers in the Southwest Area.

UNIT	LOCATION
Carson NF	Taos, NM
Cibola NF	Tijeras, NM
Coronado NF	Tucson, AZ
Coronado NF	Portal, AZ
Safford District BLM	Safford, AZ
Gila NF	Silver City, NM & Negrito
Kaibab NF	Pittman Valley, AZ
Lincoln NF	Alamogordo, NM
Prescott NF	Prescott, AZ
Tonto NF	Tonto Basin, AZ
Fort Apache	Whiteriver, AZ
Apache/Sitgreaves NF	Clifton, AZ
Santa Fe NF	Los Alamos, NM

1. Coronado NF. When dispatched within the Southwest Area the helicopter will be dispatched with the dispenser and at least 5,000 balls, unless requested otherwise. Each helitack crew will have at least 1 gallon of ethyl glycol with the helitack truck.

2. Gila NF. Helitack crew will take the PSD and 5,000 balls with them when dispatched to any incident within the Southwest Area.

3. Kaibab NF. Normal dispatch will have PSD and 5,000 balls in the support truck.

4. Tonto NF. 5,000 balls will be dispatched with the PSD machine.

5. Lincoln NF. Balls available, if requested with order.

6. Most units require an operator ordered with the machine.

b. Dispensers will not be dispatched without a certified operator. The operator will be responsible for the proper transport and handling of the dispenser and spheres throughout the entire assignment.

c. Loaded balls are not flammable nor combustible and can be shipped in the cardboard container by UPS, etc. Commercial air carrier may still refuse to transport the balls.

d. Forest Service guidelines governing organization, position requirements, etc. are found in the Interagency Aerial Ignition Guide.

74.4 Simplex Seeder Bucket

a. Prescott NF and Gila NF has a SIMPLEX SEEDER BUCKET, Model 6300 available for seeding operations as needed. Specifications as follows:

200 lbs. empty weight
23 cubic foot capacity
Approximately 450 lb. capacity
11 horsepower gas engine to power seeder
Maximum swath width - 120 feet
Electric/hydraulic control system
Pilot activated switch on helicopter collective/cycle.

b. Operator must go with seeder. Order through normal dispatch channels.